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U. S. Department of Agriculture

CONTROL WORK ON THE DUTCH ELM DISEASE IN CONNECTICUT, NEW YORK,
AND NEW JERSEY, FOR THE WINTER AND SPRING OF 1933-1934

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Recently a serious outbreak of the Dutch elm disease has developed in the metropolitan area of New York, New Jersey, and Connecticut, involving about 1200 trees scattered over some 1,400 square miles within a 30 to 35 mile radius of New York harbor. The disease is called the Dutch elm disease because it was first recognized as a distinct disease in 1919 in the Netherlands and apparently spread from that country to Belgium, Germany, France, and Great Britain, causing extensive destruction to elms in each of these countries. It has also spread into Norway, the Balkan States, and northern Italy, indicating its ability to cause injury throughout a wide range of weather conditions.

The spread of the disease from infected to healthy trees apparently is caused by elm bark beetles and, accordingly, checking the advance of the disease in New Jersey, New York, and Connecticut will depend partly upon the measures taken for removing the weakened or dying branches of trees that serve as breeding areas for the elm bark beetles, and partly upon the accuracy and speed of identification of elm trees that are affected with the Dutch elm disease and completely destroying them by burning before the disease has had opportunity to be spread to other trees.

In neither Europe nor America has any cure been discovered for a tree infected with Dutch elm disease.

In the case of infections that have developed sufficiently to have caused the death of the entire tree or large limbs, or that have so weakened the large limbs that normal bud development has not taken place, the trees can easily be recognized as probably harboring the Dutch elm disease, even during the winter season. In examining twigs or branches cut from suspected trees the most characteristic internal symptoms of the Dutch elm disease are brown streaks in the sapwood. These streaks sometimes are so numerous as to form an almost complete brown ring just inside the bark in the wood developed during the last summer, sometimes occurring in an earlier annual ring. During the summer when vegetation is well developed, usually the first and most characteristic symptom of the disease is the sudden wilting of the leaves of a branch or of several branches or of the entire tree. The wilted leaves usually turn yellow or brown before falling, accordingly the infected trees stand out in strong color contrast with the healthy trees. On some affected trees the twig growth is short, the leaves fail to reach normal size, and the foliage is thin. Often infected trees produce suckers along the trunk and at the base of the large branches. Suckering, however, is not a symptom specific for the Dutch elm disease.

Where a tree is generally infected, the entire tree must be removed and burned or so treated that neither fungus nor bark beetles can develop under the bark. If an infection is very recent it may be entirely localized in a branch. Under such a condition it is sometimes possible to prevent further spread of that infection in the tree by pruning away the infected part well below the lowest point where the symptoms of infection are apparent. Such treatment, however, is uncertain of results; and since it is important that every reasonable precaution be applied to prevent spread of the disease to other trees, it is recommended for the present that all infected trees be removed and burned whenever possible. Tools used in cutting diseased wood should be cleaned with denatured alcohol or some similar disinfectant before being used on other trees.

Under allotments from Public Works funds and Civil Works funds, the U. S. Department of Agriculture is taking active steps to locate and destroy as many as possible of the elm trees already infected with the Dutch elm disease, and, in addition, to reduce the elm bark beetles throughout the area under suspicion.

The work is carried on in cooperation with State, county and local authorities. Elm trees severely infected with the Dutch elm disease almost certainly will die within one or two years and during that period may cause the infection of many other previously healthy trees. The cooperation of property owners and others interested in dooryard, park, street, or wood-lot trees is desired in carrying out the inspection and eradication work.

While the purpose of the control program is the complete eradication of the disease within the United States, the principal immediate objective of the winter program is to locate and destroy all Dutch elm disease (*Graphium* fungus) infected trees that can possibly be found during the dormant season, especially those from which beetle flight and subsequent spread of the disease would otherwise take place in spring.

Since it is probable that many trees having incipient infections will not be discovered in one working of an area, it is obvious that complete extermination of the disease will be dependent upon proper follow-up work during the next and subsequent growing seasons to detect and destroy trees as *Graphium* symptoms become apparent and before additional spread takes place.

In accomplishing the purpose of the control project on the Dutch elm disease, the general operations of the present program will be confined to the systematic examination of elms for the presence of either *Graphium* fungus infection or scolytid beetle infestation and to the proper treatment of trees where these conditions are found. In cases where *Graphium* infections are found, the infected trees will be destroyed; in cases where scolytid infestations are found, the infested parts will be removed and destroyed. No trees other than those infected with *Graphium* will be destroyed on request or otherwise except in cases of trees recently dead from indeterminate cause or where complete removal of the tree is the only practical means of destroying a beetle infestation.

The field work now under way is strictly limited to those measures necessary for the location and removal of elm trees infected with the Dutch elm disease and the suppression of elm bark beetles. General pruning activities cannot be carried out by Federal employees. It will, however, aid this eradication campaign if park and civic authorities and property owners not only facilitate the operation of the inspectors but also provide proper care for the elm trees under their control, and particularly in reporting to State or Federal inspectors any wilting or dying elm branches or trees that show symptoms reported in this circular.

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